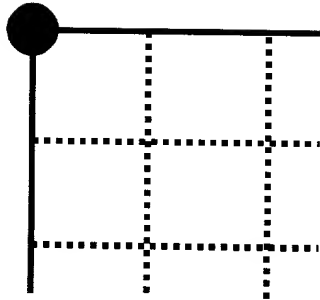
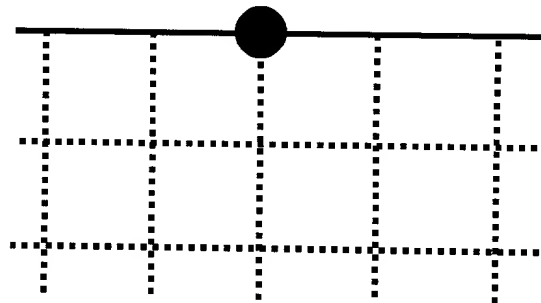


Figure 1: Sweepable geometries.

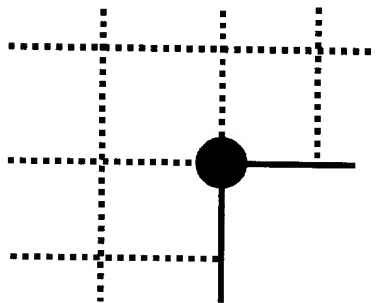
End



Side



Corner



Reversal

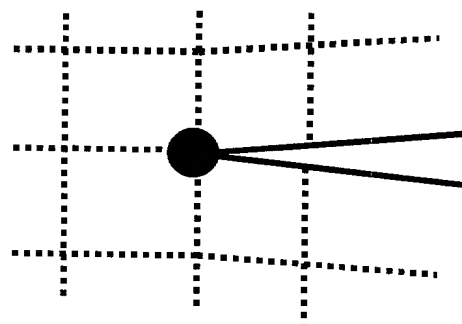


Figure 2: Mesh topology in neighborhood of surface vertex types; geometry (vertices and edges) are represented by solid points and lines, mesh edges represented by dashed lines.

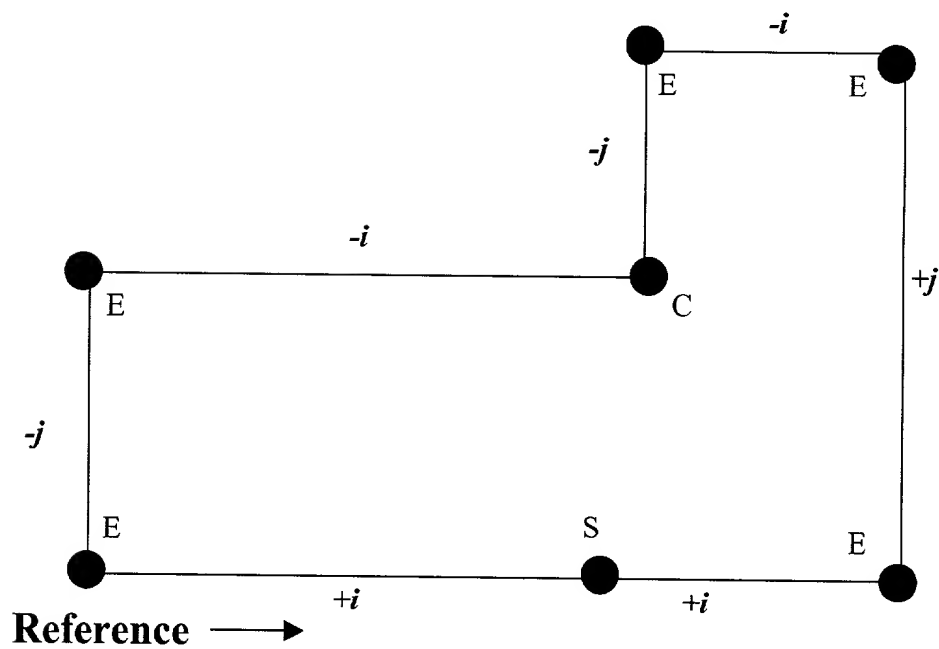


Figure 3: Submappable surface, showing vertex types (E=end, C=corner, S=side) and parametric directions ($\pm i$, $\pm j$).

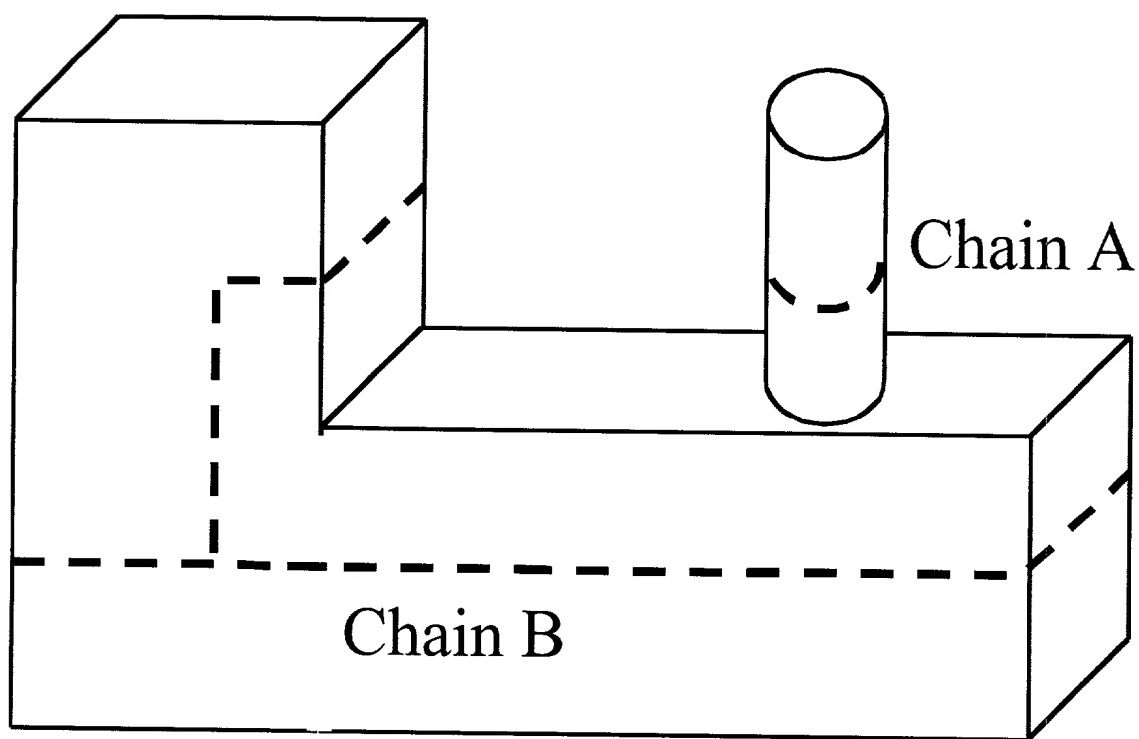


Figure 4: Chains on a solid; Chain A is on a periodic surface ; Chain B is branched.

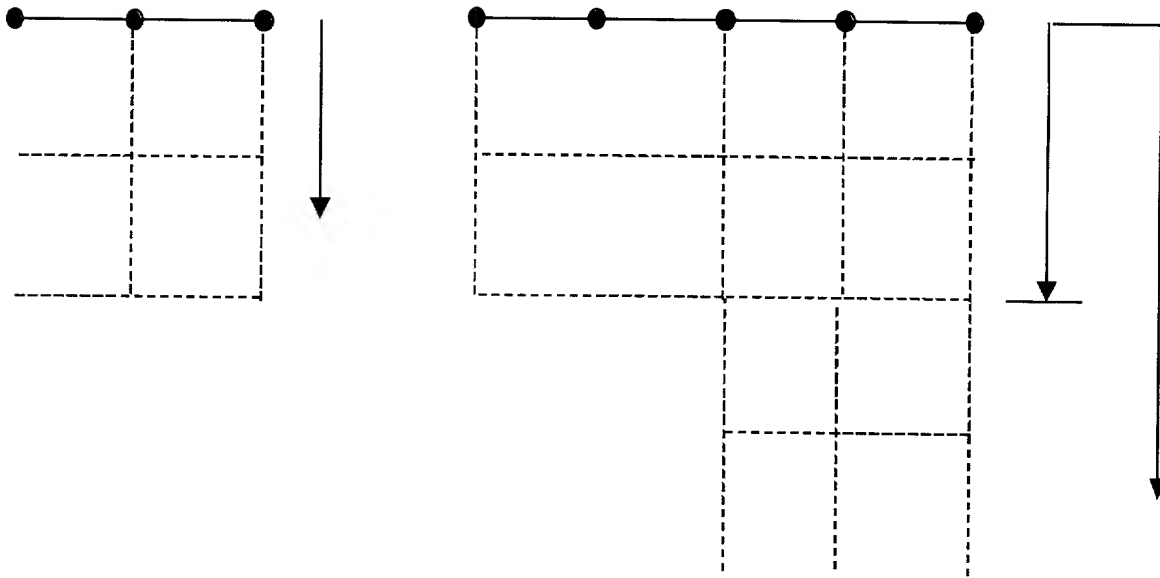


Figure 5: Extrusion of a facettted line into a mapped mesh (left); extrusion of different parts different distances into a submapped mesh (right).

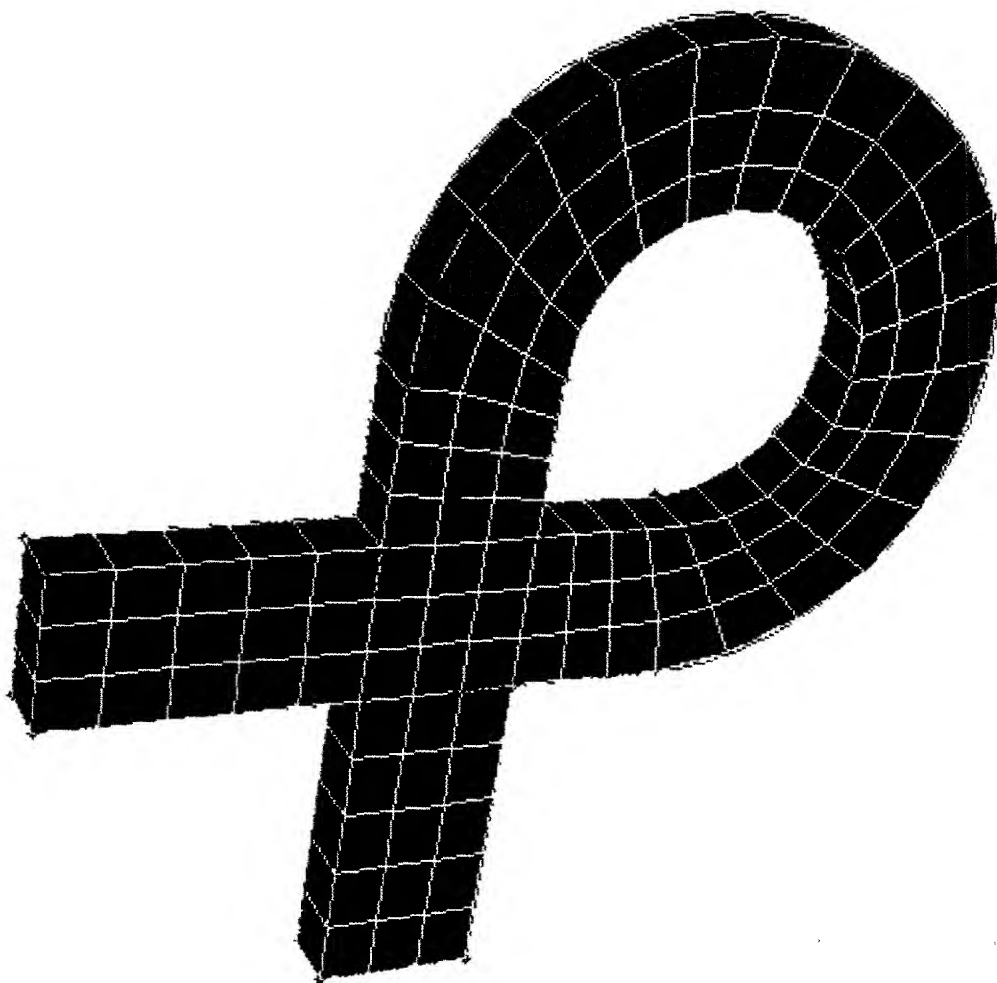


Figure 6: Volume that appears sweepable but which is not a true extrusion.

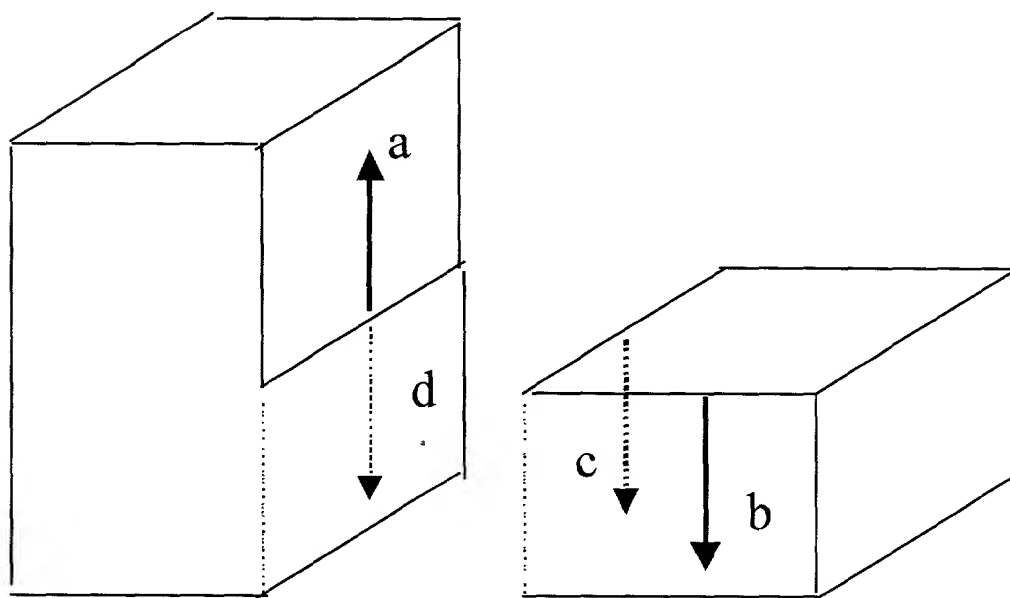
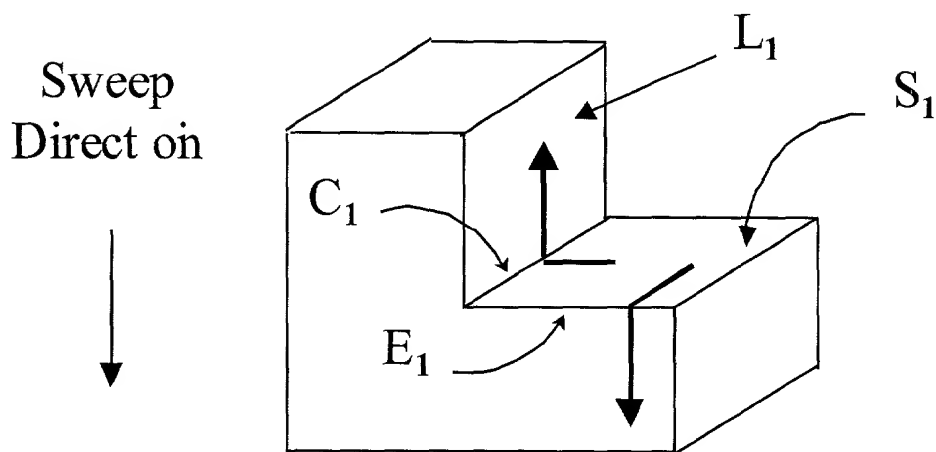


Figure 7: Traversing from a source surface over a Corner-type edge (C1) and End-type edge (E1) results in traversing the linking surface in opposite directions along the same ij parameter.

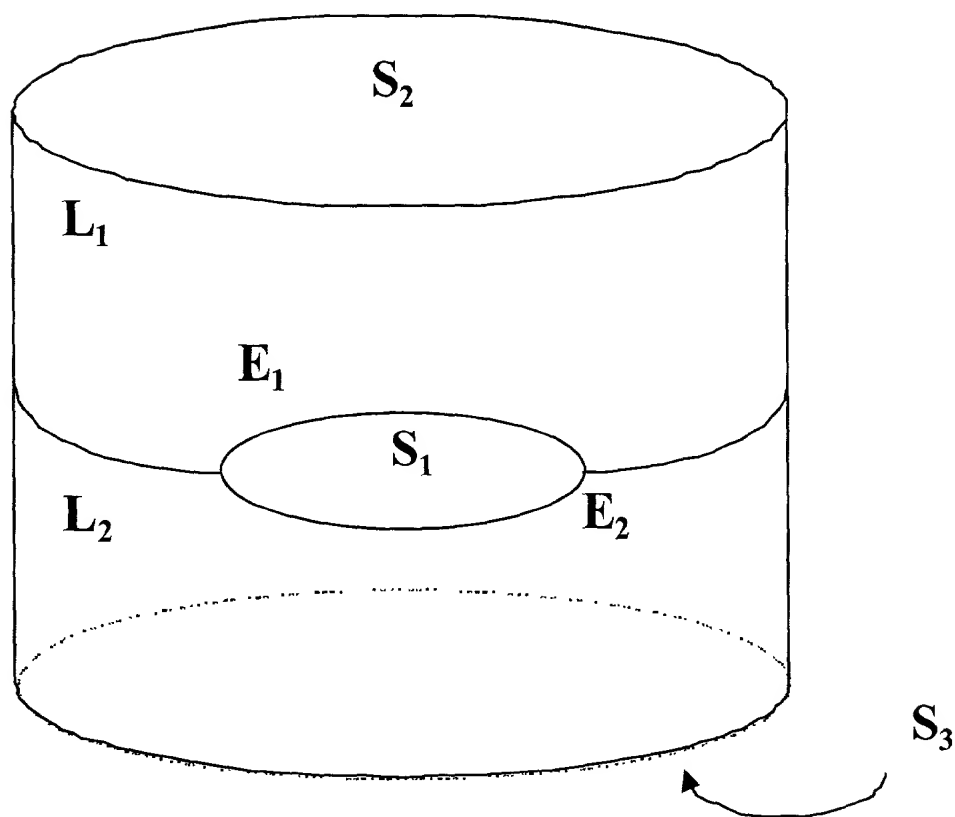


Figure 8: An example of Theorem 1b and 1c showing sweepability of a volume. When edges E_1 and E_2 are set to type End, the volume is not sweepable; the volume becomes sweepable if E_1 or E_2 is set to type corner.

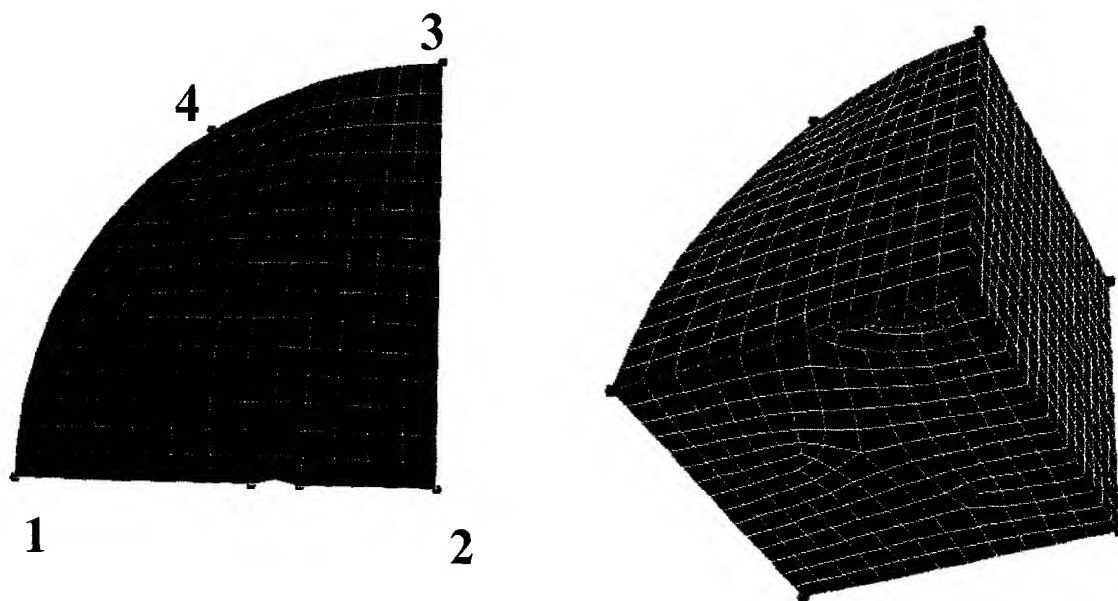


Figure 9: Vertex type adjustment for vertex 4 makes surface mappable (left); making surface mappable allows volume to be swept (right).

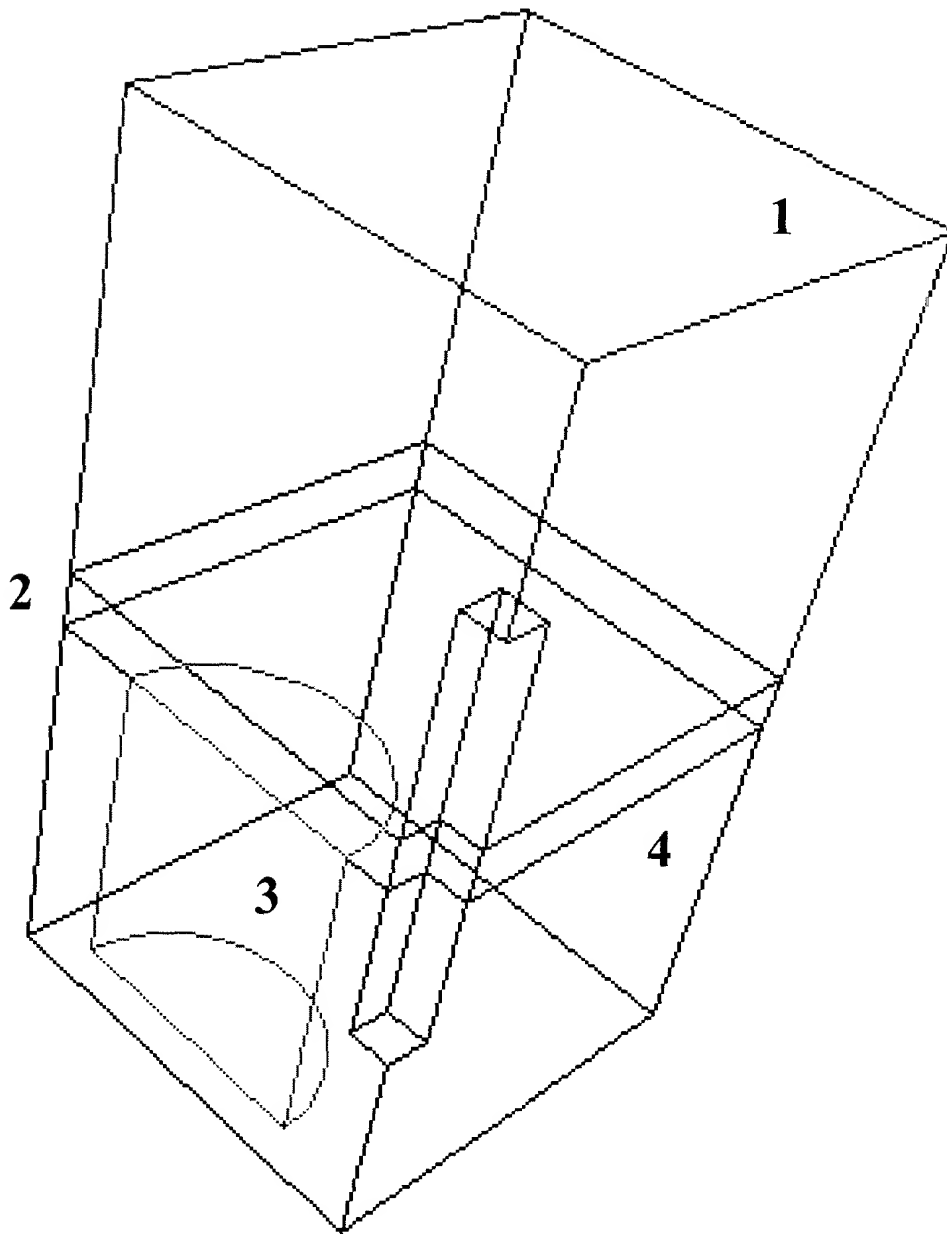


Figure 10: Four volumes demonstrating sweep order dependencies.

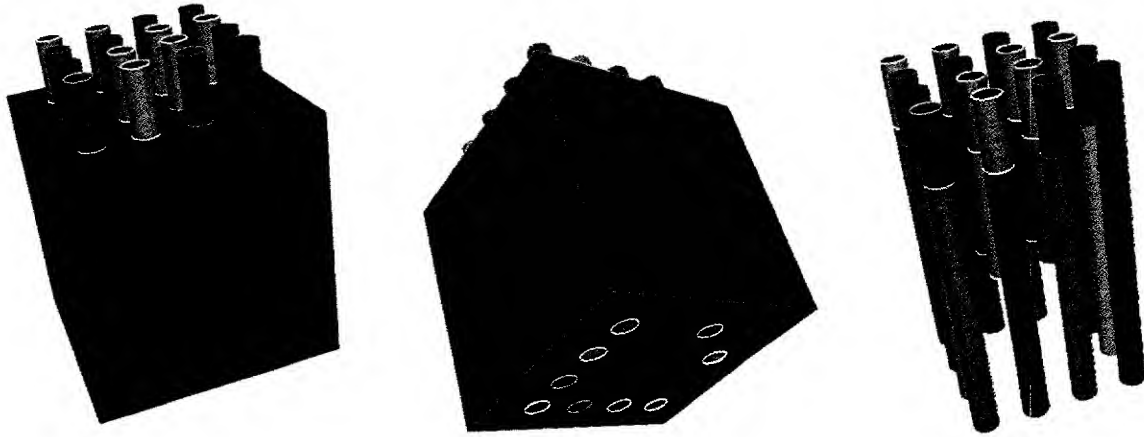


Figure 11: Collection of volumes whose schemes, source and target surfaces were detected automatically. Note inner core of rods which produces blind holes in block.

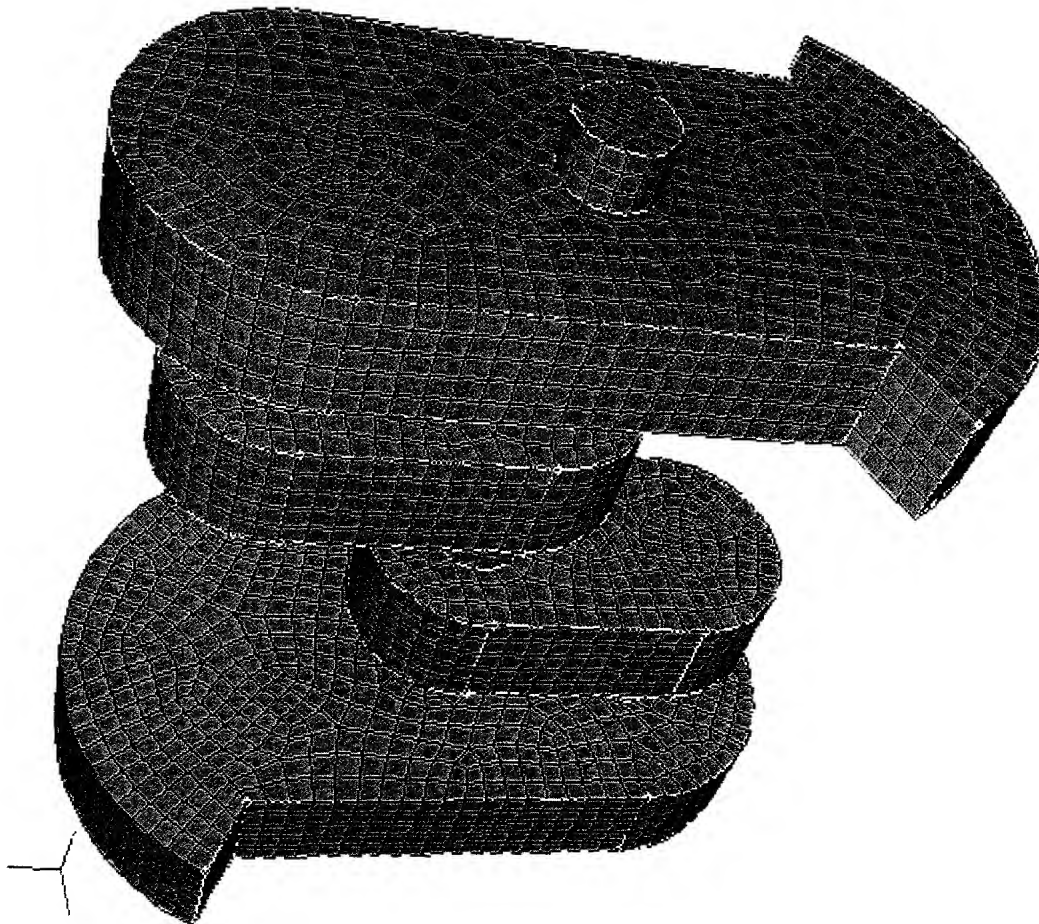


Figure 12: Volume whose sweep scheme and source and target surfaces were determined automatically.

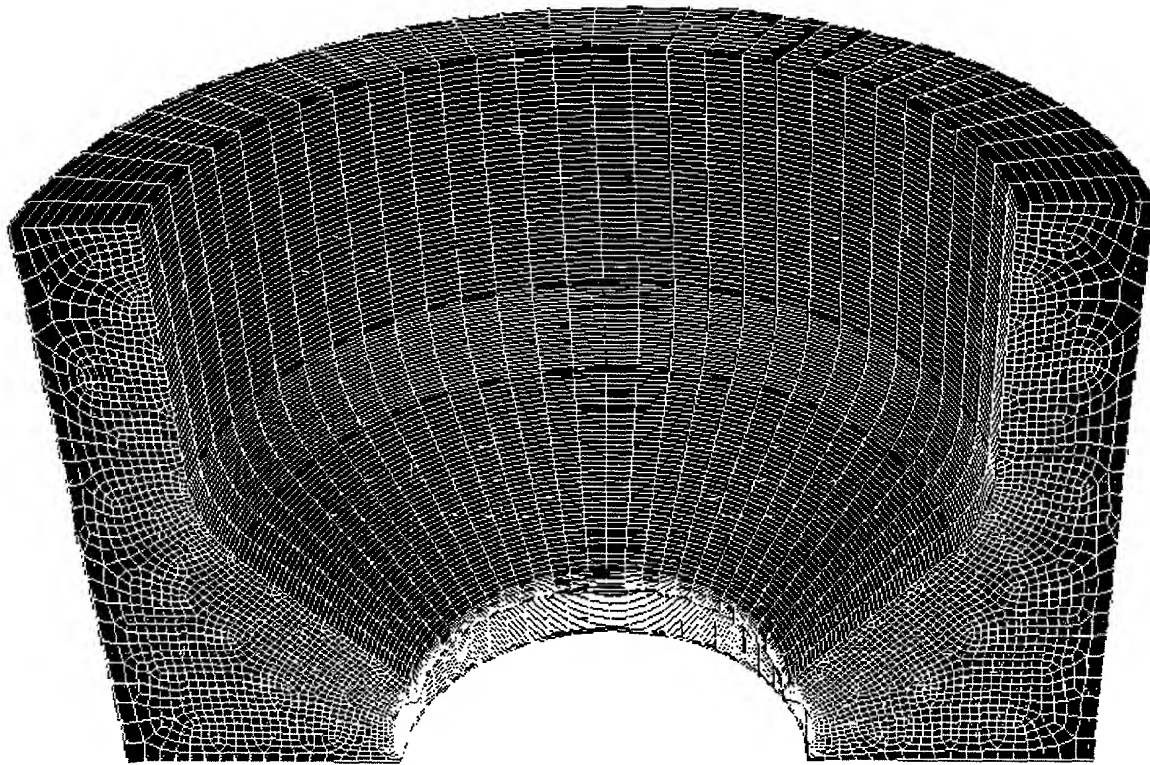


Figure 13: Volume whose sweep scheme and source/target surfaces were determined automatically.

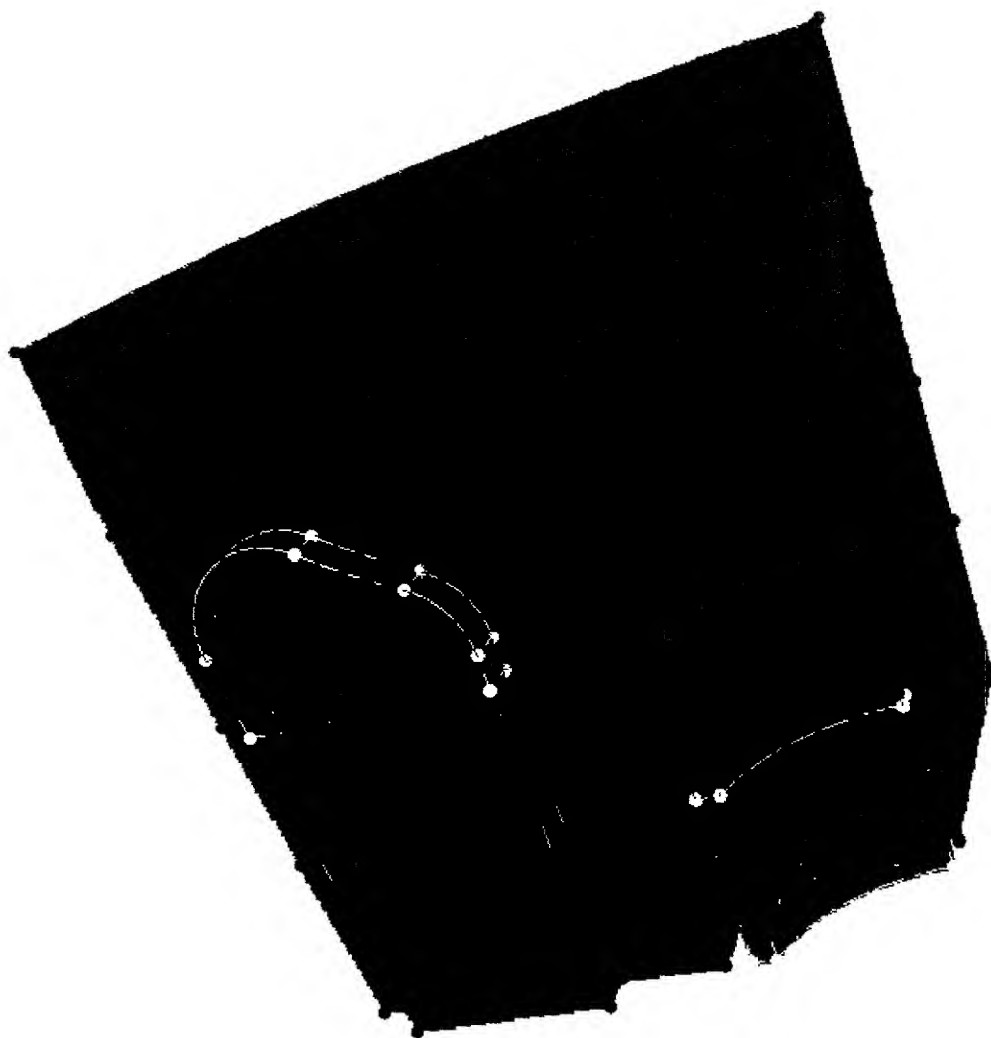


Figure 14: Group of volumes whose sweep schemes and source and target surfaces were determined automatically.